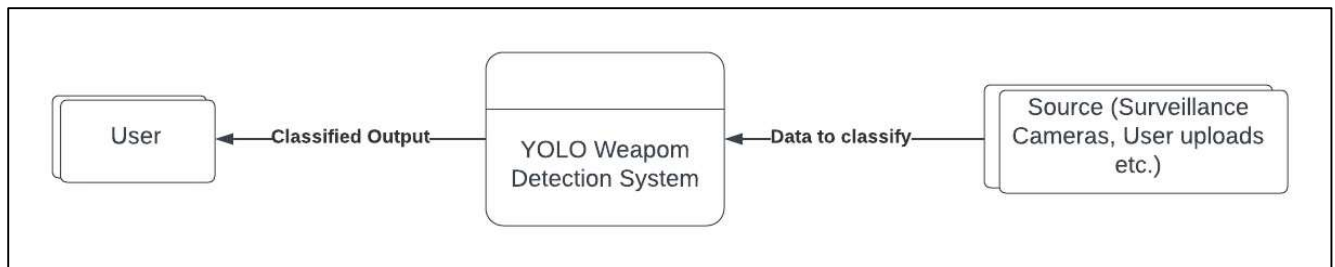


**Project Design Phase-II**  
**Data Flow Diagram & User Stories**

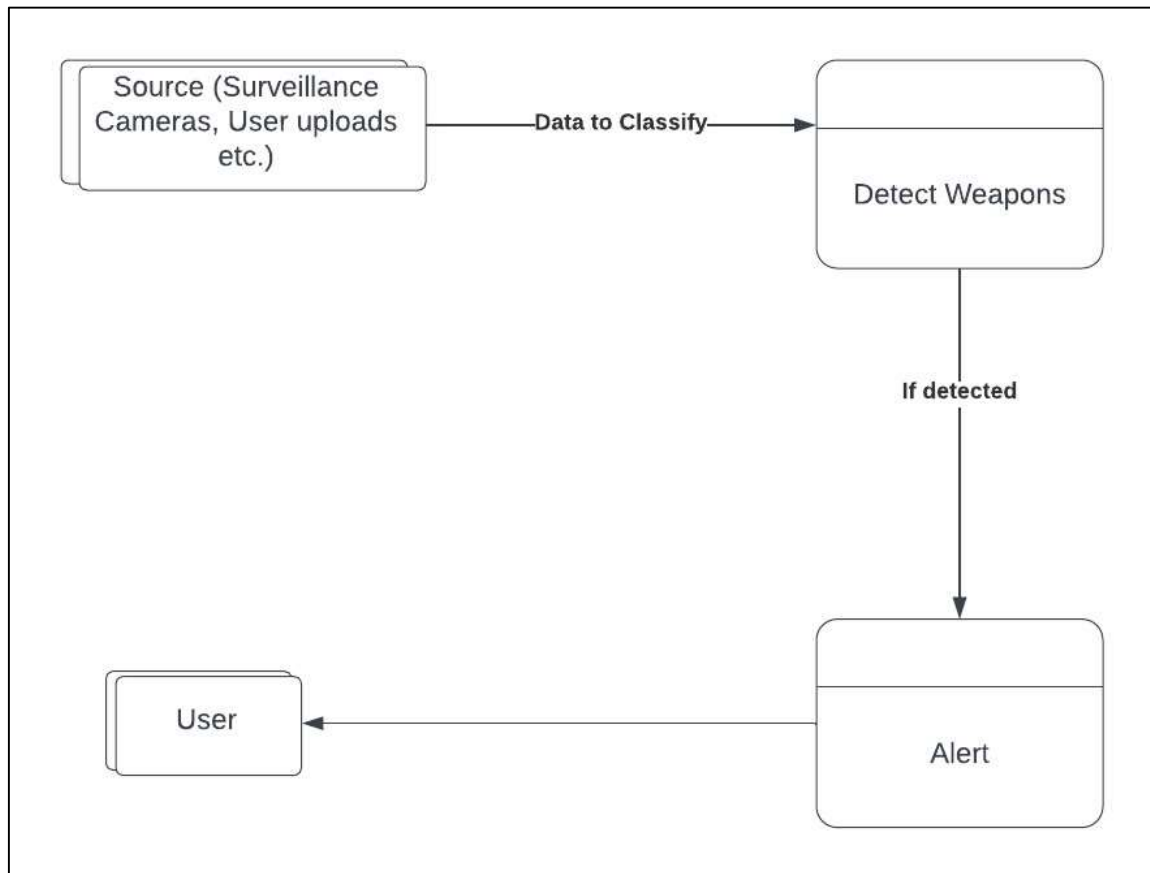
Date	19 October 2023
Team ID	PNT2023TMID593074
Project Name	Arming Against Violence - YOLO-Based Weapon Detection
Maximum Marks	4 Marks

**Data Flow Diagrams**

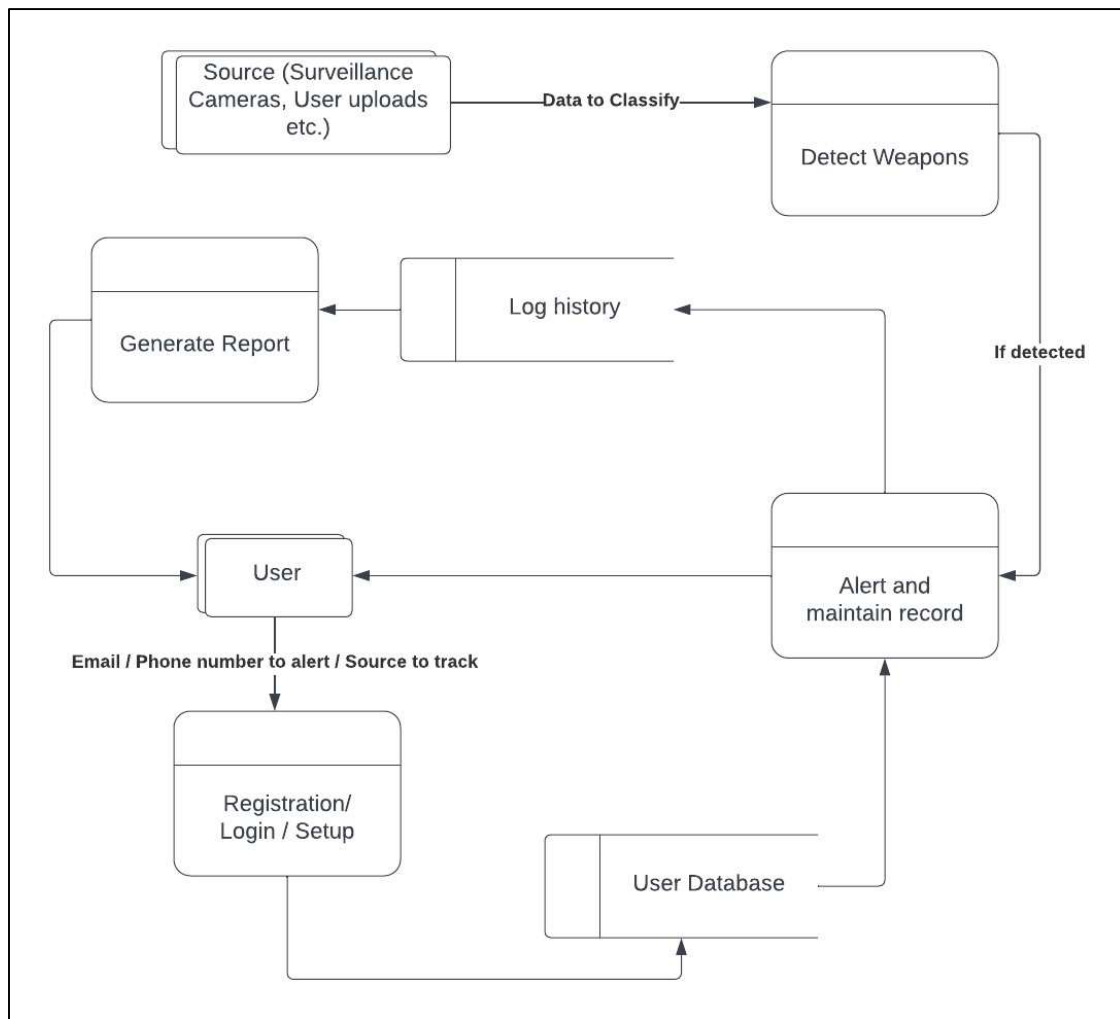
**DFD Level 0**



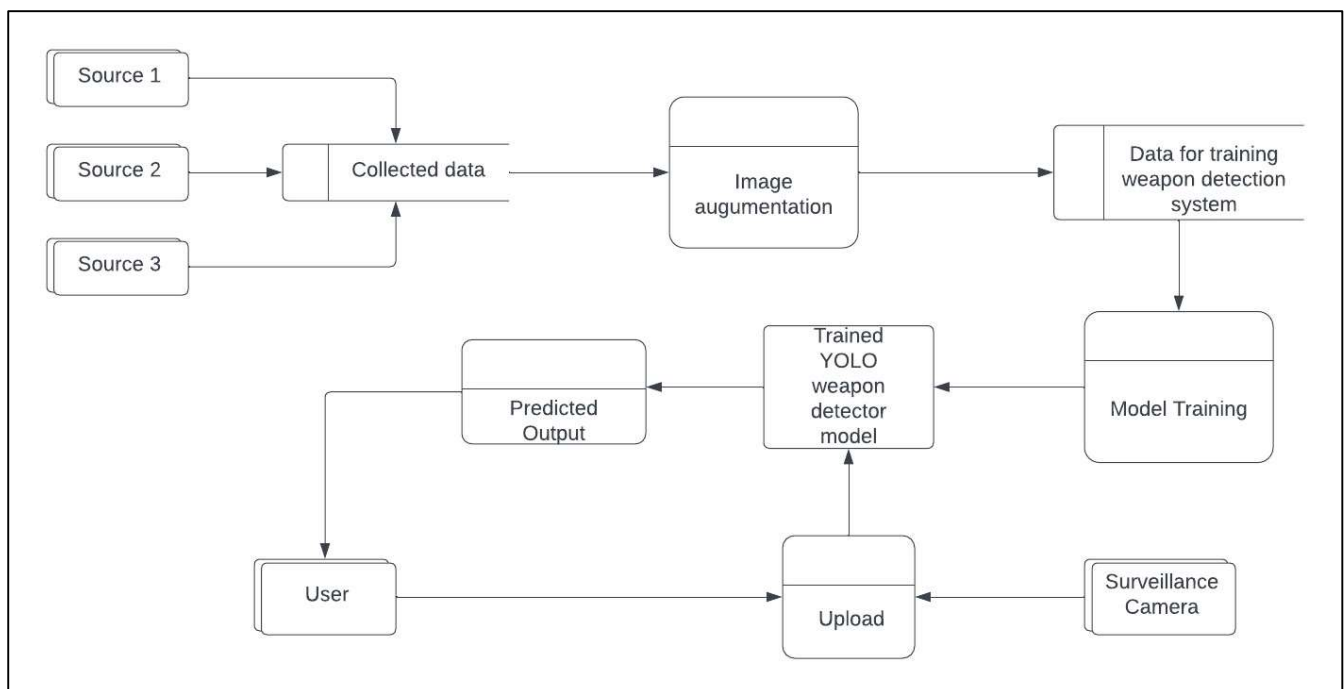
**DFD Level 1**



## DFD Level 2



## Overall Process:



## User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Developer	Project setup and infrastructure	USN – 1	As a developer, I aim to configure the development environment with the essential tools and frameworks for initiating the YOLO weapon detection project.	The development environment is successfully configured with all the essential tools and frameworks required for the YOLO weapon detection project.	High	Sprint 1
Developer	Data collection	USN – 2	As a developer, I aim to procure a diverse dataset of images featuring various types of weapons to be used for training the deep learning model.	Gathered a diverse dataset of images depicting various types of weapons.	High	Sprint 1
Developer	Data preprocessing	USN - 3	As a developer, I want to preprocess the collected dataset by resizing images, normalizing pixel values, and splitting it into training and validation sets.	The dataset is successfully pre-processed and divided for training and validation.	High	Sprint 2
Developer	Model selection	USN – 4	As a developer, I aim to investigate and assess various deep learning architectures, to determine the most suitable model for weapon detection using the YOLO.	Different deep learning architectures, are explored and assessed, leading to the selection of the most appropriate model.	High	Sprint 2
Developer	Training	USN – 5	As a developer, I am responsible for training the chosen deep learning model using the pre-processed dataset and closely monitoring its performance on the validation set.	Performance on the validation set is continually monitored to ensure accuracy and reliability for weapon detection in the YOLO project.	High	Sprint 3

Developer	Testing & quality assurance	USN – 6	As a developer, I'd like to enhance the model's resilience and accuracy, I would like to incorporate data augmentation methods such as rotation and flipping.	Testing will be conducted to ensure that the model's performance has been enhanced.	Medium	Sprint 3
Developer	Model deployment & Integration	USN – 7	As a developer, I'd like to deploy a deep learning model that has been trained for garbage classification as an API or web service. I want to integrate this model's API into a user-friendly web interface where users can upload images and obtain detection results for the type of weapon in the image.	The system's scalability can be tested.	Medium	Sprint 4
Developer	Application testing	USN – 8	I plan to perform comprehensive testing of both the model and the web interface, with the aim of discovering and documenting any potential problems or bugs. I will then fine-tune the model's hyperparameters and optimize its performance based on user feedback and the results obtained from the testing.	A web application is successfully created based on user feedback and testing results.	Medium	Sprint 4